CPD Occasional Paper Series

Nature and Impact of Women's Participation in Economic Activities in Rural Bangladesh: Insights from Household Surveys

Paper 41

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Price Tk. 30.00

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July, 2004

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The present paper, **Natural Impact of Nature and Impact of Women's Participation Economic Activities in Rural Bangladesh: Insights from Household Survey,** has been prepared as part of CPD's on-going agricultural policy research and advocacy activities with the International Rice research Institute (IRRI) under the Poverty Elimination Through Rice Research Assistance (PETRRA) project.

The present paper titled ***Natural Impact of Nature and Impact of Women's Participation Economic Activities in Rural Bangladesh: Insights from Household Survey*** has been prepared by *Dr Mahabub Hossain*, Head, Social Sciences Division, *Dr Manik Lal Bose*, Project Scientist, International Rice Research Institute (IRRI), Manila, Philippines.

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Nature and impact of women's participation in economic activities in rural Bangladesh: insights from household surveys

I. Introduction

Credible documentation of women's participation in economic activities is problematic particularly for women belonging to farm households. Several theoretical frameworks have been on board to explain issues surrounding women's work and the sexual division of labor. Marxists have distinguished between *productive and reproductive labor*, economists have conceptualized the difference between market *production and subsistence production* and between *wage and non-wage labor*, and sociologists have drawn a line between *work at home* and *outside home* (Ferber 1982; Sachs 1988). Neoclassical economic tradition emphasized the activities undertaken to meet the demand of the markets. On that count, women's work outside labor market has often been overlooked and excluded from economic analyses. In the 1960s, the human capital theorists developed the 'New Household Economics,' which was applied to impute the value of time allocation to household production. The analyses were used to spell out the male/female division of labor, and members' behavior in the market (Benería 1995). In the 1970s and 1980s, these concepts were applied to further study of labor market from the angle of discrimination and bargaining power of different household members, to understand dimensions of power and conflict in decision making. The debate on the wages of domestic labor in 1960s and the United Nations conferences during the Decade for Women (1976-1985) popularized the concept of social reproduction. The above discourse and debate contributed to recognize the role of women's work in the productive and social sectors. In recent years, empirical research have tried to document the extent of women's involvement in specific tasks, and their contribution to national income, but the controversy regarding the complexity of women's work and the interconnectedness between different types of functions remains.

The role of women's work for gender development and poverty reduction continues to be an important area of investigation in Bangladesh (Arens and Beurden 1977; Farouk and Ali 1975; Farouk 1980, 1985; Khuda 1980; McCarthy 1981; Abdullah and Zeidenstein 1982; Begum 1983; Rahman 1986; Ahsan et al 1986; Chowdhury 1986; McCarthy and Feldman 1988; Rothschild and Mahmud 1989; Jahan, 1990; Shirin, 1995; Jordans and Zwatreveen, 1997; Asaduzzaman and Westergaard 1983; Amin and Pebley 1994; Shirin 1995; Hashemi et al 1996; Jordans and Zwartreveen 1997; Mahmud 2003). It is recognized that women work more hours than men particularly in low-income households, more in agricultural than in non-agricultural economic activities, and more as unpaid family laborers than as managers. Even if they do most of the work, men mostly control their decision making power and ownership of household resources. Institutional services for development target only men. Even when women are targeted such as in micro-credit program, women are often used as a font and men keep control over managing the resources. Thus, it is acknowledged that

women are disadvantage group to acquire knowledge on farm and non-farm production systems and technologies from the service sectors. They are disadvantaged because of traditional culture and social norms that confer power and privilege to men. However some recent studies have observed the recently women from poor households change their traditional norms and responsibilities to be at home and involve in post-harvest works to appear outside home in different agricultural activities as well due to extreme poverty and food deficiency. A general critique (Westergaard 1983) of the studies is that they are based on a field work in one or a few selected villages, and hence it is difficult to get a picture for the country as a whole or for different regions. With a few exceptions, few studies have analyzed how the dynamics in rural Bangladesh have affected women.

This paper presents some empirical evidences of recent changes in gender roles in economic activities, and impact of women's participation on their empowerment and the socio-economic conditions of the household. The information is based on a two-period survey of a nationally representative sample of 62 villages from 57 districts. The sample villages were selected in 1987 while conducting a study on the impact of modern rice technology on income distribution and poverty (Hossain et al., 1994). The Bangladesh Institute of Development Studies (BIDS) implemented the study in collaboration with the International Rice Research Institute (IRRI). The sample was drawn through using a multi-stage (union-village-households) random sampling method. IRRI revisited the villages again in 2000 and collected data from a random sample drawn on the basis of "wealth-ranking" of households in the villages including households which were selected in the 1987 bench-mark survey by stratifying households on the basis of landownership and tenure characteristics. The representative nature of the sample can be assessed from Table 1, which compares the pattern of distribution of landownership and the educational background of the household head as obtained from the 2000 survey with respective information for Bangladesh available from the 1996 Agricultural Census and the 2001 population Census.

Table 1. Distribution of landownership and educational attainment of the household head: estimates from the sample survey and the Agricultural and Population Census

Characteristics	BIDS-IRRI Survey		BBS Agri-Census 1996	
	Percent of household	Percent of land owned	Percent of household	Percent of land owned
Land ownership group				
<=0.20 ha	50.2	4.8	56.0	5.8
0.21-0.40	15.1	8.3	12.1	7.2
0.41-1.00	19.3	23.3	18.6	25.0
1.01-2.00	10.1	26.6	8.2	24.2
>2.00 ha	5.2	37.0	5.1	37.6
Education of household head			BBS Population Census 2001	
No formal schooling	42.9	21.2	55.5[a]	*n.a*
Primary level	27.4	24.1	24.2[a]	*n.a*
Secondary drop-out	15.8	21.5	12.2[a]	*n.a*
Secondary passed & above	13.9	33.1	8.1[a]	*n.a*

Religion of household				
Non-Muslim	9.0	6.7	10.7[a]	*n.a*
Muslim	91.0	93.3	89.3[a]	*n.a*
All households	100.0	100.0	100.0	100.0

[a] Estimated by the authors from rural household data based on 5% sample of enumerated area in each Upazila/Thana, BBS Population Census 2001.

The data were collected through administering structured questionnaire. Detailed member level information included indicators on age, sex, education, occupations, health status and organizational membership. The information on intra-household decision-making was collected through giving special emphasis to find out the women roles in decision making for different agricultural and non-agricultural activities. In addition, a detailed time budgeting for all working members was recorded for four days preceding-days of interview. Other data used in this paper were collected at the household level. The information presented in this paper comes mostly from analysis of gender-specific (male and female also referred as men and women) data at two points of time, i.e., 1987 and 2000.

II. Participation in Economic Activities

Time allocation by gender

Households in rural Bangladesh as in most low-income countries engage in a number of activities to eke out a living. Generally speaking, the poorer the households, the larger are the numbers of sources of employment and vice versa. It is because, in a regime of formal labor market, insecurity of income sources and fluctuations of employment and incomes due to vagaries of nature, households tend to hedge against risks by adopting more than one means of income generation.

In this paper we define **economic activitie**s as those that generate income for the households or saves household expenditure for the acquisition of the goods from the market. This includes employment in the agricultural and non-agricultural labor market, but also unpaid work for the household in crop cultivation, homestead gardening, livestock and poultry raising, fishing, cottage industry, transport operation, construction, business, and personal services. There are many other activities done mostly by women that are quasi-economic in nature which are not valued in national income accounting. Examples are food-processing and preparation of meals for the family members; care of the child, old and sick members of the household; and tutoring of children. If the household had hired workers for doing these jobs, it would involve some expenditure. We call these activities as **domestic activities.**

In reality direct question to respondents on employment seriously underestimate women's participation in economic activities as most women devote their maximum time to domestic labor inn the home-based activities that identifies them homemaker. Also, marginal involvement of both men and women in many economic activities is usually missed by surveys that ask questions regarding their primary and secondary occupation. The sample survey used in the study estimated from the response on primary occupation that 85% of the male population and only 6.3% of the female population above 14 years of age were engaged in an economic activity in year 2000. The numbers were 93 and 8.8% respectively for men and women in 1987.

In order to get a full accounting of labor allocation, we adopted a time budget approach in which the respondents were asked to report the time allocation to different activities (including rest, recreation and personal care) for 12 hours from six in the morning to six in the evening for workers above 14 years of age for four days preceding the year of the survey. We also distinguished the activities by paid and non-paid work. The survey was staggered over a period of six months, so we hope the four-day activities captures peak, normal and peak periods of employment when the data are aggregated for all villages under study. It may however under-estimate the time allocation for domestic labor particularly for women who may spend time for preparing and serving food at night.

The findings on time allocation by broad activities can be reviewed from Table 2. The total working time for 2000 was estimated at 7.81 for women and 8.07 for men indicating men working harder than women. The situation was opposite in 1987 when women worked for 9.00 hours a day compared to 8.55 hours for men. That women spend longer productive hours than men was also reported by the first pioneering study on time budget by Abdullah Farouk and M. Ali based on a sample survey in seven unions in the 1970s (Farouk and Ali 1975).

Table 2. Time allocation (hrs/day) for adult population by type of activity

Type of activity	Male population		Female population	
	1987	2000	1987	2000
Economic labor	7.57	6.73	1.86	1.79
Agriculture	5.29	3.50	1.37	1.41
Non-agriculture	2.28	3.23	0.49	0.38
Domestic labor	0.98	1.34	7.14	6.02
Total labor (average/day)	8.55	8.07	9.00	7.81

The change in labor time during the 1987-2000 in our survey indicates that both men and women have reduced their work effort, which could be a positive impact of the improvement in economic conditions on enjoyment of leisure. The incidence of poverty in the sample declined from 59% in 1987 to 43% in 2000. The findings support the theory of the backward bending supply curve of leisure, that when poor people tend to work harder to earn a subsistence living and withdraw some labor when the economic conditions improves (Bardhan 1979; Rosenzweig 1978). The substantial reduction in labor supply by women may partly be due to the replacement of the traditional back-breaking homestead-based processing technologies (such as rice milling by *dhenki* and pit looms) by relatively advanced commercial technologies (such as rice huller and the semi-automated looms) and improvement in the quality of housing that requires less time for maintaining cleanliness. Most of the reduction in women's work effort is on account of domestic labor (Table 2).

Only 23% of the total labor for women was on account of economic activities, compared to 83% for men. In 2000, women spent on average 1.79 hours per day (equivalent to 82 standard eight-hour days in a year) on economic activities compared to 6.73 hrs (307 days per year) for women. During 1987-2000 there was only a marginal reduction (4%) in economic labor for women, but a substantial reduction

(11%) for men. An important point to note is a redistribution of economic labor between agriculture and non-agricultural activities for men. Men have reduced the labor supply to agriculture by one-third over this period, while increased the labor supply to non-agriculture by 42%. The reverse is the case for women who have withdrawn some labor from non-agriculture, but increased the labor supply to agricultural activities.

Labor supply by activities

Table 3 provides information on labor allocation to specific economic activities. The activities in which women are heavily involved poultry raising (31%), crop cultivation (22%), animal husbandry (17%), non-farm services (15%) and homestead gardening (8%), the figures within parentheses showing the percent share of economic labor allocated to the activity in 2000. In contrast, the major economic activities for men are crop cultivation (41%), non-farm services (18%) business and shop keeping (17%) animal husbandry (7%), and transport operation (6%). Indeed women spend more time in poultry raising, and poultry raising and homestead gardening appears to be exclusively in the women's domain, and they share substantial workload on animal husbandry with men. Since these are mostly homestead-based activities, it is convenient to carry them out in between conducting domestic duties. The activities in which women are involved relatively full time are non-farm services. Mostly by educated women are engaged in these activities.

Table 3. Employment in different economic activities for adult population by gender

Activity	Percent of adult population employed in the activity				Share (%) of the activity of total economic labor			
	1987		2000		1987		2000	
	Male	Female	Male	Female	Male	Female	Male	Female
Agriculture	83.8	59.2	59.5	59.5	69.9	73.4	52.0	78.8
Crop cultivation	67.7	15.7	47.9	6.4	60.1	32.0	41.4	21.7
Animal husbandry	28.2	29.5	23.9	16.7	7.4	23.2	7.2	16.7
Poultry raising	0.8	17.2	1.0	40.6	0.2	11.6	0.4	31.3
Homestead gardening	1.5	9.9	2.6	9.1	0.3	5.9	0.7	8.1
Fisheries	5.1	1.0	5.6	0.4	1.9	0.7	2.3	1.0
Non-agriculture	36.6	14.3	45.1	8.1	30.1	26.6	48.0	21.2
Industry/processing	2.9	8.1	3.8	1.4	2.0	11.8	4.1	3.7
Transport operation	3.0	Nil	5.3	Nil	2.7	--	5.7	--
Construction work	10.0	3.8	3.7	1.1	5.8	4.5	3.0	1.7
Business/trade	12.6	0.8	16.6	0.4	10.2	1.0	17.3	1.1
Services	11.5	3.2	17.4	5.5	9.4	9.3	17.9	14.7
Employed	96.8	66.0	91.9	64.3	--	--	--	--
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

During 1987-2000, women have increased their labor substantially for poultry raising, homestead gardening and non-farm services, but reduced labor on crop cultivation, animal husbandry, and cottage industries. Men have also reduced labor substantially on crop cultivation, and construction work but increased it in non-farm services, business and transport operation. The importance of cultivation in generating employment is on the downward trend because of the continuous reduction in farm size under population pressure. Similarly, labor is moving out from low-productive

cottage industries with the expansion of rural roads and electrification. The development of infrastructure facilitates job creation in rural trade and transport activities, and expose low quality cottage industry products to competition with higher quality urban industrial products.

Duration of employment

In the context of women's participation in economic activities an important issue is how many of them pursue these activities on a full time basis. The duration of employment is also an important issue for men in the context of measuring the extent of under-employment. Table 4 provides information on the distribution of workers by duration of employment in economic activities. For the sake of brevity we assume that 6 hours a day (42 hours a week) would be considered as full time employment. In 2000, about 37% of the women did not allocate any time to economic activities compared to 14% for men. Thus a large proportion of women are economically unemployed than among men. Male workers in particular, reduced their six and above economic working hours (from 73 to 59%) drastically compared to women from 1987-2000. This situation is also true (from 87 to 74%) for women considering both economic and domestic working hours. Thus, the rate of unemployment has increased over the 1987-2000 period, which is also reflected by duration of working hours in both economic and domestic labor uses.

Table 4. Distribution of economically active population (age 15+) by daily labor hours

Duration of work (hours/day)	Male workers		Female workers	
	1987	2000	1987	2000
Economic labor				
Nil	5.9	13.5	34.4	37.2
Up to 2.0	5.1	4.5	35.7	37.6
2.0-6.0	16.1	23.5	24.2	19.4
6.0 and above	72.9	58.5	5.7	5.8
Economic + domestic labor				
Up to 2.0	6.1	9.2	1.4	4.1
2.0-6.0	10.7	15.3	11.7	21.9
6.0-8.0	24.4	24.4	21.0	29.5
8.0 and above	58.8	51.1	65.9	44.5

Women are involved in economic activities mostly part-time. Only six percent of the women allocated more than six hours a day and hence can be considered fully employed in economic pursuits. This number is almost the same as the number obtained from the answers of the respondents when asked about the primary occupation of women. It appears that women allocate time to economic activities in the spare time after providing domestic labor and hence are only marginally involved in economic activities. About 38% of the women work for up to two hours a day, and another 19%, between two to six hours. Thus, almost 57% of the women are under-employed if economic activities are counted. Among men, 59% were fully employed, and 28% under-employed.

We have estimated the full-time equivalent days of employment per year by extrapolating the four-day data for the year and converting it to standard eight-hour person days of work. Table 5 shows the estimated number of days of employment in

agriculture and non-agriculture activities for households classified by major socioeconomic variables. It appears from the numbers that it is the economically depressed households who participate more in economic activities. Women from households who considered themselves as very poor worked for 161 days a year compared to 122 days for the poor, and 115 days for those who considered themselves as self-sufficient but vulnerable to economic shocks. However women from economically solvent group were engaged more in economic activities, presumably because the educated women who are employed in full-time services mostly belong to this group. Similar U-shaped association is found between the level of education of the household head and the days of employment of women working members. Considering the social structure based on religion, non-Muslim worked more days compared to Muslim in the case of both women and men.

Table 5. Duration of employment (days/year) by socioeconomic characteristics of the household, 2000 survey

Socioeconomic characteristics	Weight of the group	Male workers			Female workers		
		Agri-culture	Non-agric.	Total	Agri-culture	Non-agric.	Total
Farm size (ha)							
Nil	35.9	115	242	357	97	43	140
Up to 0.4	27.2	189	138	327	102	21	123
0.4-1.0	22.9	213	109	322	95	16	111
1.0-2.0	10.9	219	92	311	110	14	124
2.0 and above	3.1	252	70	322	107	6	113
Education of HH head							
No schooling	42.9	191	143	334	97	33	130
Up to primary	28.5	179	160	339	97	20	117
Secondary drop-out	15.5	147	182	329	106	18	124
SSC passed	6.7	155	181	336	102	12	114
HSC and above	6.3	118	213	331	110	49	159
Religion of HH							
Muslim	91.4	174	156	330	98	27	125
Non-Muslim	8.6	171	200	371	117	31	148
Economic condition							
Very poor	9.8	183	173	356	103	58	161
Poor	30.0	169	181	350	92	30	122
Vulnerable	38.5	175	154	329	99	16	115
Non-poor	21.7	175	139	314	110	26	136
Total	100.0	174	160	334	100	26	126

Factors behind women's participation

We ran a Probit analysis to analyze factors influencing women's participation in economic activities. The dependent variable was measured by a dummy variable with values zero for households where women allocated less than two hours per day in economic activities (those with marginal involvement in economic activities), and value=1 for other households (those with substantial involvement in economic activities). The explanatory variables included are the wage rate at the village level, the

size of land holding and the value of non-land fixed assets, the extent of adoption of modern agricultural technology, the level of education of the head of the household and of the women member, whether non-agriculture is the major source of income of the household, and a set of dummy variables representing religion, non-government organization (NGO) membership, households with at least one migrant member and the access to electricity. It was hypothesized that women's labor supply would be positively influenced by the wage rate (the supply price of labor) and access to electricity (employment opportunity), and NGO membership, while it would be negatively influenced by asset ownership, technological progress, education of the household head, earnings from remittances, and income from non-farm sources. The latter variables will be associated with improved economic conditions of the household thereby reducing the urge to earn more income by employing women.

The estimated parameters of the model are reported in Table 6. Judging from the asymptotic t-values of the estimated parameters, it appears that the most significant factor influencing women's participation in economic activities is the wage rate. Thus, women's participation might increase if the labor market become tight leading to an increase in the wage rate. The next important factor is found to be the development of infrastructure measured the availability of electricity in the village. Women's participation is higher in households with migrant members. As male members leave the household, the women tend to take over some of their economic functions. Supply of credit by NGOs has a positive influence on women's employment. Women participate is less in economic activities in households with better-educated members. Larger the size of land holding the higher the participation in economic activities, contrary to a priori expectation. However as the productivity of labor increases with the adoption of modern technology women tend to withdraw themselves from economic activities. Religion does not significantly influence women's participation, while is an unexpected result in the context of Bangladesh society.

Table 6. Determinants of women's participation in economic activities: estimates of a Probit function

Determinants	All households		Household with own land up to 0.4 ha	
	Coefficient	Asymptotic *t*-value	Coefficient	Asymptotic *t*-value
Village level wage rate (Taka/day)	0.00326	6.16	0.00338	5.15
Size of land holding (ha)	0.03780	2.33	0.06745	1.25
Value of fixed assets (000' Taka)	0.00001	0.06	0.00030	0.78
Land covered by modern varieties (%)	-0.00062	-2.27	-0.00090	-2.39
Education of household head (years)	-0.00686	-2.31	-0.01344	-3.04
Religion (dummy; Muslim=1)	-0.05453	-1.27	-0.02697	-0.52
HH with NGO membership (dummy)	0.06273	2.41	0.07158	2.32
HH with a migrant member (dummy)	0.11023	4.01	0.14659	4.08
Major non-agric[1]. income (dummy)	-0.07524	-2.67	-0.09208	-2.62
Villages with electricity (dummy)	0.10341	4.23	0.09731	3.21
Constant term	-3.81712	-59.23	-3.81614	-48.66
Chi-square		4844		2100
Degrees of freedom		1877		1246

HH= household.

[1] services and business/trade are the major sources of income.

III. Labor market participation and earnings

How important is the market in generating employment for women? Do women face discrimination with regard to wage rate in the market? What is the trend in the development in the labor market in recent years? Table 7 provides information from the survey to address the above questions. It may be noted that about 12% of the women's employment are generated in the market, compared to about 35% for men in 2000. The importance of the market is however more important for non-agricultural activities, than for agriculture. The labor market accounts for only about four percent of women's employment in agriculture, and about a quarter for men in 2000. It is important to note that the importance of the labor market did not grow over the 1987-2000 period. In fact it shrank from 18 to 12% for female and 42 to 35% for men during the period. These decline trends perhaps due to increasing rate in self-employment in different sectors.

Table 7. Labor market and wage rate by economic activity of workers by gender

Economic activity	Hired labor as percent of total labor				Wage rate (US$/eight hours/day)			
	1987		2000		1987		2000	
	Male	Female	Male	Female	Male	Female	Male	Female
Agriculture	27.4	8.6	24.6	3.6	0.94	0.63	1.00	0.58
Crop cultivation	29.3	19.4	29.5	11.4	0.92	0.63	0.99	0.57
Animal husbandry	4.6	0.3	0.7	*Nil*	0.98	--	--	--
Poultry raising	*Nil*	*Nil*	*Nil*	*Nil*	0.98	--	--	--
Homestead gardening	9.6	0.6	8.3	0.5	1.20	--	1.15	--
Fisheries	53.8	*Nil*	17.2	30.4	1.10	--	1.15	0.63
Non-agriculture	77.2	44.5	45.3	41.5	1.36	1.06	1.62	1.23
Industry/processing	60.5	13.3	53.9	8.6	1.15	0.54	1.23	1.80
Transport operation	77.8	*Nil*	55.8	*Nil*	1.31	--	1.20	--
Construction work	75.3	46.6	72.3	30.9	0.99	0.74	1.19	0.66
Business/trade	77.8	*Nil*	6.2	*Nil*	1.54	0.88	2.37	--
Services	77.5	80.6	73.6	54.4	1.43	1.28	1.79	1.25
Total	42.4	18.1	34.6	11.6	1.17	0.91	1.39	1.07

Powerful social norms in Bangladesh tend to deter females' mobility into public domain and confine them to low productive household activities that generally carry low returns. Setting aside the cultural constraint on mobility, females' involvement in the labor market is also constrained by the "imposed" primary responsibilities for household tasks and childcare. Other two important factors that influence women's involvement in the labor market are location and proximity. These factors limit women's mobility in relation to market opportunities and help to explain why location appears to be far more important in explaining returns to women's labor than for men. Usually, women from more remote areas would be the least responsive to price signals in the supply response if they are the least to get access to transport their goods and services to the market. Most women's activities and income are dominated by male lineage. In addition, there are some cultural and religious barriers in different locations that do not allow female worker to go for field work even in their own farm or go for

income from outside work even the family suffered from regular food insecurity problem.

The numbers in Table 7 also show considerable gender disparity in the wage earnings. For adjusting the difference in the purchasing capacity of nominal Taka over the 1987-2000 we have expressed the wage in US dollars using the prevailing exchange rates. Incidentally the depreciation of the Bangladesh Taka vis-à-vis US dollars was almost the same as the increase in the consumer price index. In 2000, women received on average us dollar 1.07 per day's work compared to US$1.39 for men, i.e., about 30% less. In specific activities the gender disparity in the wage rate was even more pronounced. In agriculture women received about 42% lower wage than men compared to 24% in non-agriculture. It may be noted however that for both women and men the wage rate increased substantially over 1987-2000, particularly in the business and non-farm service which are expanding sub-sectors of the rural economy.

The disparity in male-female earning is quite in line with that found elsewhere reported in different literatures. Again, in subsistence agriculture, "particularly poorer households and those with failed crops and inadequate livestock send family members to perform agricultural labor and food processing on the farms and in the kitchens of relatively wealthier households. These types of activities are generally of piecemeal in nature, least productive and often crisis related. Poor women (and their children) are generally paid in kind whereas men may receive money. This type of work is sporadic, seasonal, and not well paid but will help sustain the household. In contrast, the "myth of nimble fingers", in which employers target females as suited to and doing well in tedious and routine jobs at the lowest pay, limits females advancement and remuneration" (Cameron 1995; Spring 1995, 2000).

Generally, it is quite possible that if household heads are educated, there is chance that family members-especially female members- receive proper education to vie for relatively more productive pursuits. Second, education also helps raise the bargaining power of the females. Due to the dearth of data on relevant variables, we could not capture the "human capital approach" in full. However, a modest attempt has been made to see the disparity syndrome by taking into account the education of household heads and spouses (Table 8). The findings indicate that illiterate female received about half of the wage rate what the male counterpart gets in 2000, while it was much lower in 1987. Data indicates that the higher the level of education of household head and spouse, the lower the male-female disparity in earning.

Table 8. Differences in male-female wage rate (weighted average[a]) by educational level

Education level	2000 survey			1987 survey		
	Male (US$)	Female (US$)	Females' wage as % of male	Male (US$)	Female (US$)	Females' wage as % of male
No formal schooling	1.01	0.47	-53.5	1.03	0.61	-40.9
Primary schooling	1.22	0.62	-49.2	1.22	0.79	-35.0
Secondary drop-out	1.20	0.69	-42.5	1.58	0.92	-41.8
Secondary level	1.52	1.67	9.9	1.36	1.02	-24.9

Higher secondary & above	2.19	2.17	-0.9	1.96	--	--
Average for all groups	1.22	0.76	-37.7	1.17	0.66	-43.6

[a] Excluding extreme outliers.

IV. Impact on women's empowerment

Measuring empowerment

Measures of 'empowerment' particularly for women are used in different context to carry multiple meaning. In general, most of the measures point to 'power' as the root of empowerment. Kabeer (1999, 2000) defines power in terms of "ability to make choices". Sen (1985) refers to the "ability" as one chooses to live and "power to achieve chosen results". Some authors argue that power is the dominant factor of decision-making and its establishment in hierarchy with the sense of responsibility (Sen and Grown, 1985). It is clear that the women's participation, their decision-making capacity, control over resources and their own welfare practices are the major factors of women empowerment. In other word, empowerment is the ability with full participation of people in the decisions and process for their choice of lives, and particularly for women's empowerment is to exercise their choices with full capability to contribute to social and economic growth for their welfare in overall development and to acknowledge human values of freedom of choice and human rights (Batliwala, 1994; United Nations, 1995; Oxfam, 1995).

In this paper we have considered the females' 'participation' in decision making as the proxy of 'empowerment' in the field of agricultural and non-agricultural sector in rural areas. Few variables are selected to develop a women empowerment index (WEI). We have picked up the impact on absence of the household male head in the household on women's empowerment, agriculture activities and livelihood. Here absence of male household head considered mainly as male out-migration from the household. The reason for emphasizing absence of male head in connection with empowerment should be clear. It is being hypothesized that absence of male head impinge a larger burden on females in terms of household responsibilities and in the absence of males, females gain relatively more empowerment than in their presence.

The empowerment index

One of our hypotheses is that with male migration, there is a shifting of women's roles from being an unpaid family worker to a manager. Here we can assess women's decision-making authority, relative to her husband and other family members, in case of joint families. Within joint families, the male head of the family often makes decisions. However, in nuclear families, it is not clear whether the wives make decisions with or without their husbands. The pertinent questions are: (a) who makes the decisions in the household? (b) are decisions jointly made? (c) who makes the decisions in the presence of the husband?

Since there are many decision-making variables, it is difficult to make sense out of them. So we have developed empowerment index with the criteria often used by sociologists. We assigned the lowest value (=1) when, in the absence of the husband, the decision is taken by other members (rather than by the wife), i.e., this is case of women being least "empowered". At the other extreme, the highest value was assigned (=5) where females make decisions even in the presence of their husband, i.e., in this

case the women are most "empowered". In a lighter vein, they can be called "super women"- dubbed as the most empowered of all.

We considered nine intra-household decision-making indicators where five indicators related to agricultural domain and four indicators were related to non-agricultural domain. In case of agriculture, we wanted to know about the decision makers pertaining to the types of crops grown, management of crops, purchase of inputs, raising livestock and poultry and post harvest operations. Similarly, another four questions were asked for non-agricultural functions.

The rating values of the decision-makers have been assigned according to the weight in favor of wife. For example, higher value (***K***) of an indicator (***X***) goes to indicate higher empowerment level of a woman shown below, where ***K*** is (1…5):

1= decision is made by other members in the absence of the husband,
2= by husband, when he is present without consultation of the wife,
3= by wife in the absence of the husband,
4= jointly by husband and wife, or jointly with others in absence of the husband,
5= by wife, even when husband is present,

The above statement can be measured through rating of each decision indicator (X) as below:

	K = any rating value of each indicator				
X_i = decision making indicators	Low				High
X_1	1	2	3	4	5
:	1	2	3	4	5
:	1	2	3	4	5
X_n	1	2	3	4	5

Therefore, the average scoring value of X_i (i.e., ***i***th indicator) for all households would be the average of the value K_i denoted by the following matrix:

$$X_i = \overline{K_i} \qquad \text{……..(1)}$$

We used the given value of nine indicators for each household to construct the women's empowerment index. Five indicators have been used for agricultural index ($WEIag_i$), and four for non-agricultural index ($WEIng_i$) are shown in equations 2 and 3:

$$WEIag_i = \sum_{i=1}^{5} X_i \Big/ 5 \qquad \text{……..(2)}$$

Where, $WEIag_i$ representing the following indicators of an ***i***th household

x_1 = Choice of crops
x_2 = Crop/field management
x_3 = Purchasing inputs
x_4 = Livestock/poultry farming
x_5 = Post-harvest operations

$$WEIng_i = \sum_{i=1}^{4} X_i \Big/ 4 \quad \text{……..(3)}$$

Where, ***WEIng****i* representing the following indicators of an ***i***th household

x_1 = Cash management
x_2 = Travel and recreations
x_3 = Children's education
x_4 = Voting in election

Therefore, the overall women empowerment index (***WEI****i*) stand for an ***i***th household is shown in equation 4:

$$WEI_i = (WEIag_i + WEIng_i)/2 \quad \text{……..(4)}$$

Results on intra-household decision-making and women's empowerment

The males' dominating role in decision-making is in evidence in the case of when the head is present (Table 9). For crop agricultural decision except post-harvest work, about 23 to 34% male head took sole decision, otherwise mentioned that decision made after joint discussions with other members. An exception is with regard to cash management where about 84% of women take decisions by themselves in absence of husbands. Presumably, other male or female agents dominating the leadership of the households, and obviously the presence of adult male usually dominate decision making in most of the household and it's economic activities in the Bengali culture. It is quite interesting note that that there are few women in all categories of households who are reported to take decision and leadership even in the presence of husband. Feeble though as proportion (3% or so), the husbands of these households do not seem to be "empowered" in the conventional sense of the term.

Table 9. Intra-household decision-making of household head and wife by selected activity

[Percent of household]

Decision making indicator	Head present and takes decision	Wife takes decision when:	
		Head present	Head absent
Choice of crops	22.7	0.6	41.9
Crop management	33.9	0.9	34.8
Purchasing inputs	27.3	1.0	48.4
Post-harvest operations	2.7	0.9	92.2
Livestock/poultry farming	5.1	0.8	38.2
Cash management	3.8	0.6	84.1
Children's education	1.7	0.6	71.3
Voting in elections	4.7	1.5	73.3
Travels and recreation	2.5	0.6	69.8

The association between women's participation in economic activities and women's empowerment can be seen from Table 10. We considered value "1" as very weak empowerment, value "2" as weak, value '3" as normal and value "4" and "5" as strong empowerment. The association seems to be fairly weak. A smaller percent of households with no participation in economic activities have strong empowerment but

the same is the case with households in which women are employed full time in economic activities. Indeed, women who are marginally or moderately involved in economic activities seem to be most empowered. Thus, there appears to be an inverse "U" shaped relation of women's empowerment with the extent of women's participation in economic activities.

We have also classified the women into groups with regard to their involvement in economic activities, a) those who are not involved at all and those who are marginally involved, and b) those who are fully involved or moderately involved. Then we run a t-test on the equality of the value of the empowerment index between the two groups for all the nine decision-making variables, as mentioned above. The results are reported in Table 10. It may be noted that the null hypothesis of no difference in empowerment is rejected only in the case of decision-making with regard to livestock raising, education of children, and travel and recreation. However only for decision making with regard to livestock raising women is more empowered if they participate in economic activities.

Table 10. Association of women's empowerment with Women's participation in economic activities, 2000

Indicators and empowerment level	Percent of household by economic working hours of women			
	Zero hrs	<=2 hrs	2-6 hrs	>6 hrs
Agricultural domain				(60.7***)
Very weak	53.0	36.7	40.1	64.0
Weak	15.4	16.2	15.3	8.0
Normal	15.1	17.6	18.3	4.0
Strong	16.6	29.5	26.3	24.0
Non-agricultural domain				(57.6***)
Very weak	7.4	3.8	4.6	22.0
Weak	22.0	17.5	18.8	22.0
Normal	36.5	48.9	48.9	36.0
Strong	34.0	29.8	27.7	20.0
All indicators				(80.1***)
Very weak	30.1	14.1	19.1	42.0
Weak	39.3	40.0	39.5	30.0
Normal	11.0	15.8	13.7	6.0
Strong	19.6	30.2	27.7	22.0
All in each indicator	100.0	100.0	100.0	100.0

Note: Figures in parentheses are Pearson χ^2 value significance at <1%*** and 5%** levels.

We ran a multiple regression model to analyze factors of women's empowerment. The estimated parameters of the regression model are reported in Table 11. It may be noted that the most important factors influencing women's empowerment the size of landownership and the tenure status of the household. The higher the size of owned land the more empowered the women are. The women belonging to the tenant

households appeared to be more empowered compared to that of women in the owner-operated farms. Also the older women are more empowered than the younger women, as indicated by the positive coefficient of the age of the spouse. The higher the levels of education of the household members the more empowered are the women members of the households. After controlling for the effect of these other variable influencing empowerment, women's economic involvement seem to be significantly impact women's empowerment. The influence is however weak, as indicated by the lower t-value of the regression coefficient of this variables, compared to some other variables. The impact is positive for agricultural decision-making but negative for non-agricultural decision making.

Table 11. Factors influencing women's empowerment: estimates of multi-variate regression

Factors	Mean value	Empowerment in decision making					
		Agricultural aspects		Non-agricultural aspects		All aspects	
		Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
Size of land owned (ha)	0.52	0.15296	7.02	0.02243	1.56	0.09495	6.28
Non-land fixed assets ('000 Taka)	19.8	0.00033	0.75	0.00076	2.59	0.00052	1.69
Avg education of earners (years of schooling)	4.3	0.01906	3.69	0.00691	2.03	0.01366	3.81
Whether a tenant HH (%)	31.6	1.03133	26.40	0.13342	5.18	0.63226	23.33
Whether business/service as major income (%)	31.1	-0.33464	-7.65	0.01618	0.56	-0.17872	-5.89
Whether HH earn from labor sources (%)	43.1	-0.30544	-7.07	0.09740	3.42	-0.12640	-4.22
Age of the household head (years)	45.4	-0.00757	-4.13	-0.01423	-11.77	-0.01053	-8.28
Age of the spouse (years)	35.4	0.01626	8.16	0.02383	18.14	0.01963	14.20
Whether a joint family (%)	37.6	0.02165	0.56	-0.05792	-2.26	-0.01371	-0.51
Whether have an NGO member (%)	29.7	-0.01881	-0.48	0.05023	1.96	0.01188	0.44
Whether have an migrant member (%)	25.5	-0.21771	-4.91	-0.04272	-1.46	-0.13994	-4.54
Whether non-Muslim HH (%)	9.0	0.03481	0.56	0.01919	0.47	0.02787	0.65
Women's labor in economic activity (hrs/day)	1.91	0.02215	2.76	-0.01095	-2.07	0.00744	1.33
Constant term	--	1.86121	23.76	2.62865	50.89	2.20229	40.52
R^2			0.39		0.19		0.37
F-value			91.55		34.25		84.08

HH= households.

V. Conclusions

Women bear dynamic and multiple responsibilities at home in activities like food preparation, health care, childcare, children's education and other domestic duties. The average working hour has reduced over time indicating substitution of labor for leisure with some improvement in the economic conditions of the household. Women's working hours in economic activities were found to be low due to their substantial involvement in non-economic household works. About 37% of women did not participate at all in economic activities, and another 38% worked only for up to two hours a day. Only six percent of the women worked for more than six hours a day in economic activities, which may be considered as full time employment.

Among economic activities women's involvement in livestock rearing and homestead gardening and cottage industries are significantly higher than that of men. They are engaged in these activities on a regular basis although allocated only a few hours per day. Very few women are involved in business and service activities that are in the domain of men. Over time, men have allocated more time to non-agricultural activities in which earnings are higher, which tend to influence women's participation in agricultural activities.

Most of the employment is generated on account of the household managed business. The labor market has not grown over time, and remains less important in generating employment for women than for men. The wage rate has increased somewhat over time mostly in non-farm economic activities where women are marginally involved. The gender disparity in the wage rate is substantial.

For assessing the impact of women's participation in economic activities, we measured empowerment index on the basis of decision making with regard to a number of variables and analyzed its association with women's economic participation. The value of the empowerment index is generally low, and its association with women's participation is weak. Women's economic involvement influence women's empowerment positively in the agriculture sphere, but negatively, in the non-agriculture sphere. More important factors affecting women's empowerment are age of women, land ownership and land tenure, and the level of education.

In general, tradition and culture that favor men and men-women work relations in the Bengal society are retrievable as the main barriers of gender development. These have been social norms since hundreds of years. Findings of the study indicate that women are very seldom given the opportunities to express their ideas for execution, which is reflected by the low empowerment indexes. As a result, women's economic and social values are not reflected in the household decision-making and leadership. This situation was commonly found irrespective of presence or absence of husband or male heads in the family. Therefore, the basic question remains on, 'why women's empowerment and their participation in economic activities is very low despite relentless efforts made by government, NGOs and donors?'. Somehow, there are critical shortcomings in the strategy of women development program and its implementation. Although some women themselves wants to be spared from participation in economic activities beside men. A large segment of poor women are deprived of the opportunities in economic participation due to the prevailed socio-cultural tradition and lack of access into the job market even they would like to participate in economic activities besides men.

Gender equality can be achieved through cooperation between men and women where men should play the prime role of inviting women. Men should understand that women's contribution to the wellbeing of their family could improve men's life and the appreciation of women's work could lead to greater contribution in improving household economy and quality of life. Finally, we would like to note that gender development issue should target male first to change their traditional attitudes and views, culture and socioeconomic activities to create demand from their edge. Then attempts for socioeconomic development of women should follow that demand for sustaining such attempts. Both government and non-government organizations should give priority to target men first for women empowerment from grassroots level to the

top decision making arena. We suggest that the women empowerment and their economic participation in the labor force are extremely depended on their education and outward mobility in an established liberal society.

REFERENCES

Abdullah, T.A. and Zeidenstein, S.A. (1982). *Village women of Bangladesh: prospects for change*. Oxford: Pergamon Press.

Ahsan, R.M., S.R. Hussain, and B.J. Wallace (1986). *Role of Women in Agriculture*. The Centre for Urban Studies, University of Dhaka, Bangladesh.

Amin, S. and Pebley, A. (1994). "Gender inequality within households: The impact of a women's development programme in 36 Bangladeshi villages". *Bangladesh Development Studies.* Vol. 22 (2&3): 121-154.

Arens, J., and Beurden, J. van (1977). *Jhagrapur, Poor peasants in a village in Bangladesh.* Amsterdam.

Bardhan, P.K. (1979). "Labor Supply Functions in a Poor Agrarian Economy." *American Economic Review* 69, pp.:73-83.

Batliwala, S. (1994). The meaning of women's empowerment: New concepts from action. In Sen, G., Germain, A. and Chen L.C. (eds.) *Population policies reconsidered: health, empowerment and rights*. Cambridge: Harvard University Press.

Begum, S. (1983). *Women and Rural Development in Bangladesh.* Master's Thesis. Cornell University. (*mimeo*graphed).

Benería, Lourdes. 1995. "Toward a Greater Integration of Gender in Economics", in World Development 23:11, pp.1839-1850.

Cameron, M. (1995). "Transformation of Gender in caste divisions in labor in rural Nepal: Land, Hierarchy, and the case of Untouchable Women", *Journal of Anthropological research,* 51: 216-246

Chowdhury, N. (1986). "Revaluation of Women's Work in Bangladesh". *The Bangladesh Journal of Agricultural Economics,* Vol. IV, No. 1.

Farouk, A. (1980). *Time Use of Rural Women.* Bureau of Economic Research, Dhaka University. Bangladesh.

Farouk, A. (1985). *The Hardworking Poor*. Bureau of Economic Research, Dhaka University. Bangladesh.

Farouk, A., and Ali M. (1975). "*The hardworking poor: A survey of how people use their time*". Bureau of Economic Research, Dhaka, Bangladesh.

Ferber, M.A. (1982). "Women and Work: Issues of the 1980s", *Journal of Women in Culture and Society*, vol.8:273-95

Hashemi, S.M., Schuler, S.R., and Riley, A.P. (1996). "Rural credit programmes and women's empowerment in Bangladesh". *World Development*, Vol. 24(4):635-653.

Hossain M., Rahman, M., and Bayes, A. (1994). *Rural non-farm economy in Bangladesh: A dynamic sector or a sponge of adsorbing surplus labor?* SAAT Working Paper, ILO, New Delhi, India.

Jahan, I. (1990). Country paper-Bangladesh. In *Gender issues in agriculture: papers and proceedings of the regional conference on gender issues in agriculture*. Manila, 5-6 December. ADB and UNIFEM.

Jordans, E. and Zwarteveen, M. (1997). *A well of one's own: gender analysis of irrigation program in Bangladesh*. International Irrigation Management Institute (IIMI), Colombo.

Kabeer, N. (1999). "The conditions and consequences of choices: reflections on the measurement of women's empowerment", UNRISD Discussion Paper DP108, United nations Research Institute for Social development, Geneva.

Kabeer, N. (2000). Resources, agency, achievement: reflections on the measurement of women's empowerment. A paper presented at the conference "Power, resources and culture in a gender perspective: towards a dialogue between gender research and development practice" in Uppsala, October 26-27, 2000.

Khuda, B. (1980). *Time Allocation Among People in Rural Bangladesh*. DERAP Publication, No. 101. Chr. Michelsen Institute, Bergen.

Mahmud, S. (2003), *Actually How Empowering is Micro Credit?* Paper presented at an International Seminar on Attacking Poverty with Microcredit, Organized by Palli Karma-Shayak Foundation (PKSF), January 8 and 9, Dhaka, Bangladesh.

McCarthy, F.E. (1981). *Contribution of women to the production and processing of crops in Bangladesh.* Ministry of Agriculture, Dhaka, Bangladesh.

McCarthy, F.E., and Feldman, S. (1988). Processes of Impoverishment in Bangladesh: Reconceptualizing Poverty and Resources". *The Journal of Social Studies*, No. 39. Dhaka, Bangladesh.

Oxfam (1995). *The Oxfam handbook of relief and development*. Oxfam. Oxford.

Rahman, R.I. (1986). *The Wage Employment Market for Rural Women in Bangladesh.* BIDS, Research Monograph No. 6. Dhaka, Bangladesh.

Rosenzweig, M.R. (1978). "Rural Wages, Labor Supply, and Land Reform: A Theoretical and Empirical Analysis". *The American Economic Review* 68, pp.:847-861.

Rothschild, S., and Mahmud, S. (1989). *Women's Roles in Agriculture: Present Trends and Potential for Growth*. Bangladesh Agriculture Sector Review, UNDP and UNIFEM, Dhaka, Bangladesh.

Sachs, C.E. (1988)."The Participation of Women and Girls in Market and Non-market Activaties on Pennsylvania Farms", in W.G.Haney and J.B.Knowels (ed) Women and Farming-Changing Roles and Changing Structures, Westview Press, Boulder and London.

Sen, A.K. (1985). Well-being, agency and freedom. *The Journal of Philosophy*. 132(4): 169-221.

Sen, G. and Grown, C. (1985). *DWAN, Development, crisis, and alternative visions: third world women's perspectives*. Development Alternatives with Women for New Era (DWAN). New Delhi.

Shirin, M. (1995). Achievements of women in mixed farming. In Ahmed, U. and Miah, M.A.H. (eds.) *Success stories of women in agriculture: proceedings of a national workshop on case studies*. Bangladesh Agricultural Research Council (BARC), Dhaka.

Spring, A. (1995). *Agricultural Development and Gender Issues in Malwai*, Lanham Md: University Press of America.

Spring, A. (2000). "Commercialization and Women farmers: Old Paradigm and New Themes" in Anita Spring (ed.) *Women Farmers and Commercial Ventures: Increasing Food Security in Developing Countries*, Lynne Rienner, Boulder London.

United Nations (1995). *Fourth world conference on women*, 25 October, Beijing, China. New York: United Nations.

Westergaard, K. (1983). *Pauperization and Rural Women in Bangladesh: A Case Study.* BARD, Comilla, Bangladesh.